MUSCULO-SKELETAL SYSTEM

www.kdhe.state.ks.us/c-f/special_needs_part2.html

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Muscolo-Skeletal System[1]

Structure and Function

Movement of the body is dependent on the proper functioning of the musculoskeletal and nervous systems. If any one of these parts of the body is altered or injured, the result could be loss or change in the body's ability to move.

Muscular System

A body system composed of contractile tissue which effects movement of an organ or body part.

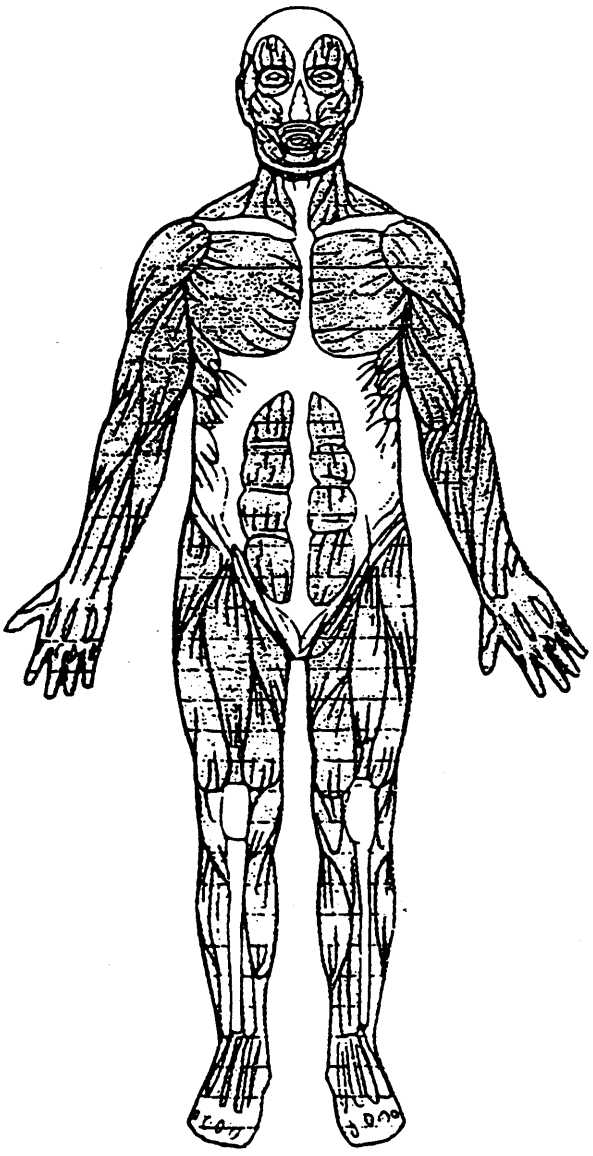


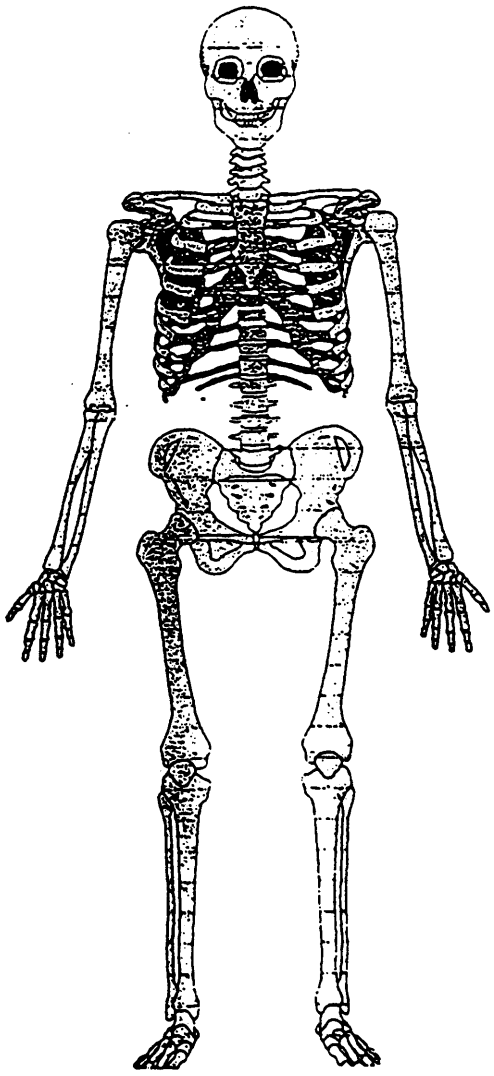
Diagram of
SKELETAL MUSCLES

Skeletal System

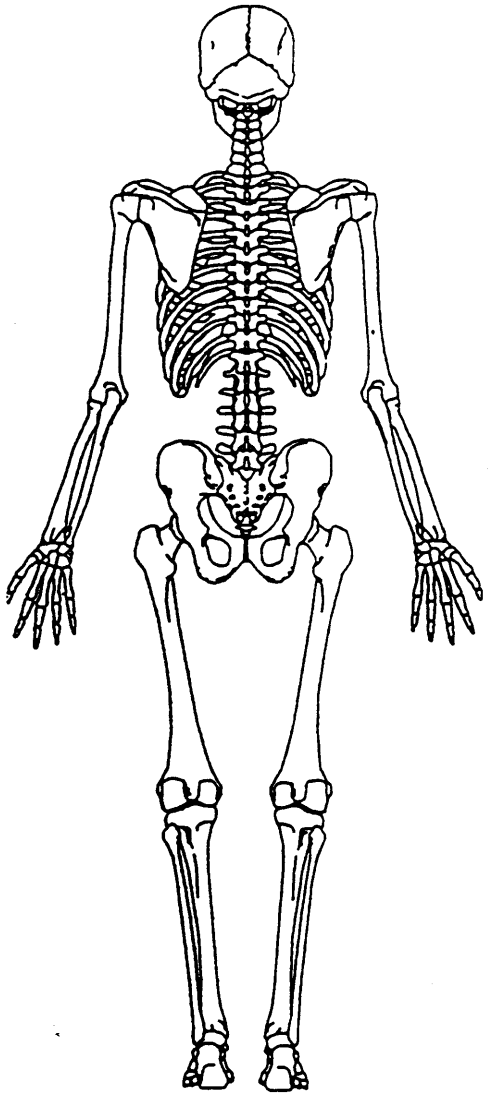
A body system composed of bone tissue which forms the body framework.

Diagram of the SKELETAL SYSTEM

Front View



Back View



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Disorders Affecting the Musculo-Skeletal Systems

Muscle movement and functioning may be altered by a number of causes. Damage to a portion of a student's brain may result in a break in the transmission of impulses to the muscles and loss of the muscle's ability to function. Muscles may also lose their ability to contract because of disease or deterioration due to a decrease in the number of nerves acting upon the muscle. Another reason may be lack of use.

Normal daily activities keep the muscles loose and pliable by maintaining range of motion in the joints and related muscles. If movement is less frequent and limited the muscles become less pliable and shortened. The shortened muscles pull the joint into an abnormal position, creating a contracture. The contracture causes greater effort for movement, increased wear on the joints, and decreased range of motion. Loss of normal muscle movement can make bones porous and soft.

Adaptive equipment (desk, chairs, feeding equipment) and frequent movement should be available as needed to assist the student to function optimally in the school environment. Activities in the classroom, cafeteria, and physical education program may need to be modified to meet the student's needs.

The extent and nature of the student's limitation will vary depending on the severity of the condition. With some disorders the student's limitations may grow worse over time (i.e. muscular dystrophy). If the disorder or injury is treatable, however, the condition may resolve entirely (i.e. sprains & fractures). It should be noted that students with chronic neuro-muscular contractures (i.e. unusual muscular tightness), osteoporosis (i.e. brittle bones); and spinal deterioration (i.e. scoliosis) may have a need for assistance with physical mobility.

Disorders of the Nervous System that may affect strength, movement and sensory perception:

Brain and spinal cord tumors and congenital anomalies.
Brain damage from inadequate oxygen due to head trauma, drowning, suffocation or other injuries.
Brain and spinal cord injuries including brain hemorrhages.
Neuromuscular disorders such as polio and cerebral palsy.
Seizures.
Spina Bifida.

Disorders of the Muscular System that may affect strength and movement:

Sprains and strains.
Muscular disorders such as muscular dystrophy.

Disorders of the Skeletal System that may affect strength and movement:

Fractures including skull fractures.
Skeletal disorders such as osteoporosis and scoliosis.

Some of these disorders may require an anticipated health crisis plan.

A sample of the Individualized Health Care Plan and Anticipated Health Crisis Plan are found in Appendix A. These may be copied and used to develop a plan for each student. For a student who requires an assistive device for ambulation, the following items should receive particular attention:

- Student's baseline status (including skin condition, level of mobility)
- Type of physical mobility assistance student requires
- Reason student requires the physical mobility assistance, activity restrictions
- Bracing, assistive devices

PHYSICAL MOBILITY ASSISTANCE

I. Purpose

The purpose of the following procedures is to help the student who requires physical mobility assistance to maintain good range of motion, good muscle length, and as much independence as possible in normal daily activities. Additionally, there is a section on good body mechanics for protection of anyone assisting the student.

II. Suggested Settings

Many students who need physical mobility assistance participate in regular school activities with modifications that should be determined by the lawful custodian, physician, physical therapist, occupational therapist, school health nurse, and school staff. Staff who have contact with the student should be familiar with how to assist the student with movement and positioning.

III. Suggested Personnel and Training

Support of the student who requires assistive devises for ambulation can be administered by the school nurse, physical therapist, occupational therapist, lawful custodian, teacher aide, or other staff person who has general training in the assistive device of the student. General training should cover the student's specific health care needs, potential problems and appropriate lifting procedures (and how to obtain assistance should problems occur).

IV. Special Equipment

Equipment is optional and depends on the individual needs of the student. Equipment may include:

Cane
Crutches
Walker
Prosthesis
Pillows
Bolsters
Mats
Beds
Wheelchairs

V. Individualized Health Care Plan: Issues for Special Consideration

Each student's Individualized Health Care Plan must be tailored to the individual student's needs. The following section covers the procedures for assisting the student who required assistance with mobility and possible problems and emergencies that may arise. It is essential

to review all the procedures that are applicable to the student before writing the Individualized Health Care Plan.

A sample of the Individualized Health Care Plan and Anticipated Health Crisis Plan are found in Appendix A. These may be copied and used to develop a plan for each student. For a student who requires an assistive device for ambulation, the following items should receive particular attention:

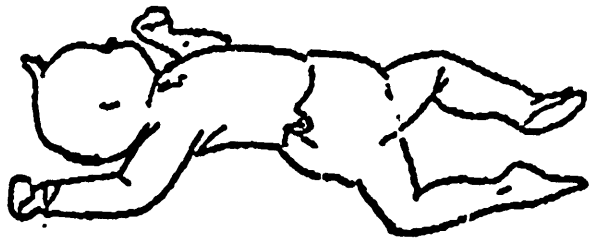
- Student's baseline status (including skin condition, level of mobility)
- Type of physical mobility assistance student requires
- Reason student requires the physical mobility assistance

VI. Possible Problems

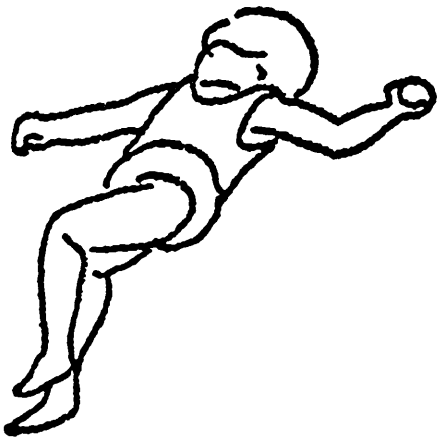
Deformities resulting from improper positioning.

COMMON DEFORMITIES

FROG LEGGING

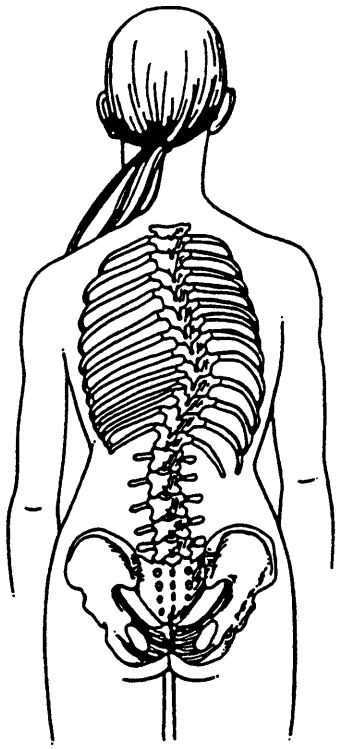


WINDSWEEPING



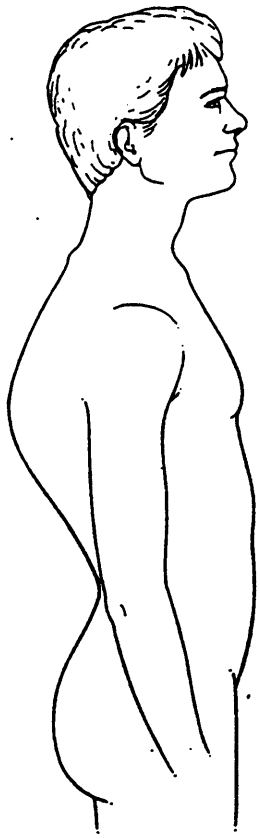
SCISSORING

SCOLIOSIS



KYPHOSIS

LORDOSIS



2

Principles of Good Body Mechanics

Principles	Points to Remember
1. Obtain help to lift anyone or anything heavy (over 50 lbs).	*Good body mechanics allow movement and lifting of heavy objects or students without injury to the staff member or student. Therefore, if possible, plan to move a heavy object when help is available.*
2. Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3. When moving a heavy object or student:	*Never lift an impossible load.*
• Use proper posture at all times. Maintain your lower back in good alignment while standing or sitting.	*Proper posture decreases the chances of back injuries.*
• If possible, pull it, push it, roll it, or lower it rather than lift it.	*Work with the force of gravity by pulling, pushing, rolling or lowering, rather working against the force of gravity by lifting the load.*
• Stand close to the object or student to be moved.	*Provides a good center of gravity and good balance for moving the load and an even distribution of weight.*
• Provide a broad base of support.	*Have feet at least 12 inches apart with one foot slightly in front of the other.*
• **Keep back straight, knees and hips flexed, weight distributed on both feet, and shoulders in line with pelvis.**	*Avoid twisting movement of the spine. Do not keep back rigid because it will lead to back strain and decrease flexibility.*
• Use as many muscle groups as possible for moving the object or student.	*Leg and arm muscles reduce the workload on the back and support the load.*
• Breathe during the moving effort.	*Breathing provides for good oxygenation of the muscles and prevents dizziness and injury.*

- To change the direction of the movement, pivot your feet, turn with short steps, and turn the whole body without twisting the upper torso.

  To lower an object or student always bend straight down toward the resting place, never twist to lower an object or student. Lowering straight down prevents twisting sprains and injuries to the back.

- Use a verbal count of 1-2-3 to coordinate movements with the student or the staff member assisting with moving the student or object.

  Coordination of movements will prevent jerky movements, which could lead to back strain and injury.

4. When lifting a heavy object or student:
   - Squat
   - Stand to lift
   - Carry object close to body
   - Carry using muscles that pull shoulder blades together.[3]

Principles of Good Body Mechanics
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure							
B.	Steps:							
	1. Obtains help as needed to move student or object.							
	2. Explains procedure to student and encourages participation as much as possible							
	3. Demonstrates the following when moving student or heavy object: Don't lift if possible (push, roll, or lower) Stand close Broad base of support Back straight, knees and hips flexed, weight on both feet, shoulders over pelvis Use large muscle groups Breathe Demonstrate change of direction Coordinates movement with student or helper							
	4. When lifting the student, demonstrates the following: Squat Stand Object close to body Shoulder blades together when carrying heavy object or student							

4

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

General Information Sheet

Students Who Require Physical Mobility Assistance

Dear (Teacher, Lunch Aide, Bus Driver, etc.):

_____(student) has a condition that requires physical mobility assistance. Physical mobility assistance may include a cane, crutches, a walker, a prosthesis (a replacement for a missing body part), an orthosis (brace), a cast, or a wheelchair.

Most students who require physical mobility assistance will need more time to move from one area to another. If needed, allow the student extra time to move from one area to another and physically support the student if necessary.

If the student has any problems with his/her physical mobility assistance, contact:

_____

_____

_____

These staff members have been trained to deal with any problems that may arise with this student.

Positioning a Student

Procedure		Points to Remember
1.	Determine the need for positioning of student.	*Review the physician's orders and student's Individualized Health Care Plan.*
2.	Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible. **If you are uncertain about proper position, consult a physical therapist.**	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3.	Wash hands.	
4.	Assemble equipment as needed for positioning of student. Know how the equipment works before using it with the student.	*Equipment varies with students and position. Talk with lawful custodian to determine what equipment is used at home.*
5.	Have assistance available as needed to assure the safety of the student and staff.	*The degree of assistance depends on the student's size, how much the student can assist, the procedure, and the size and strength of the staff person.*
6.	Follow the principles of good body mechanics when lifting or moving the student.	*Good body mechanics prevent back injury.*
7.	Change the student's position as needed. The following guidelines for positioning are for a student without musculoskeletal abnormalities such as a dislocated hip. These guidelines should only be used after consulting the student's physician, physical therapist, school health nurse, or other persons who are knowledgeable about the student's condition.	***Positioning should be individualized for each student.***
8.	Make sure the student is safe and comfortable	
9.	Wash hands.	
10.	Clean and store equipment as needed.	
11.	Document change of position in the students log.	

Positioning Guidelines: Prone (on stomach)

Purpose of Prone Positioning

1. To relieve fatigue
2. To promote extension in a student who is usually flexed.
3. To encourage head control.
4. To increase shoulder and elbow range of motion through weight bearing.
5. To diminish the influence of abnormal oral motor patterns.

Precautions

1. Get clearance from OT/PT staff before using this position.
2. Student should be able to turn his head in prone position to free the mouth/nose in order to breathe.
3. Monitor fatigue of the head and neck (prone usually should not exceed 20 minutes).
4. Don't use if student has twisted pelvis and legs.
5. Watch the range of motion in hip extension. Support the hips if position puts too much strain on muscles.
6. If student has hip dislocation, support is needed under the dislocated hip.
7. Consider the pressure on the chest of females.
8. Observe for signs of pain.

Consideration

1. Consider the angle of the incline – the higher the incline, the less gravity pulls down on head/neck; the lower the incline, the more gravity pulls down on the head/neck.
2. Consider the height of the wedge regarding the weight bearing on the arms or engagement in an activity.
3. Positioning equipment needed: beds, mats, wedges, bolsters, pillows, scooter, floor tray, beanbags, etc.

Procedure	Points to Remember
Turn head laterally and align with body.	Turn head to side and place on small flat pillow if necessary
Abduct arms (slightly away from body) and externally rotate at the shoulder joint. Flex elbows	Place arms at side, using handrails if necessary. Place small foam pads or pillows as needed under shoulders.

Place small flat support under pelvis at level of umbilicus and extending to upper third of thigh.

Place flat pillow under abdomen to align spine and help breathing.

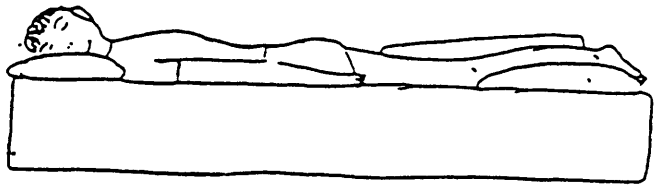
Place lower extremities in neutral position.

Extend legs in a comfortable position.

Suspend toes over edge of cot.

Either position student so that the toes extend over the end of the cot or place a pillow under the ankles so the toes do not touch the cot.

Make sure the student is safe and comfortable.



Wash hands.

Clean and store equipment as needed.

Document change of position in the student's log.[5]

Positioning Guidelines: Supine

(on back)

Purpose of Supine Positioning

1. Good resting position.
2. To counteract fatigue and contractures that happen with prolonged sitting.
3. Can be used to counter effects of certain types of edema.
4. To promote extension in a student who is usually flexed.
5. To strengthen active reach in a student who can use his arms freely when objects are placed above or to the side.
6. Lying supine on a wedge increases visual monitoring.

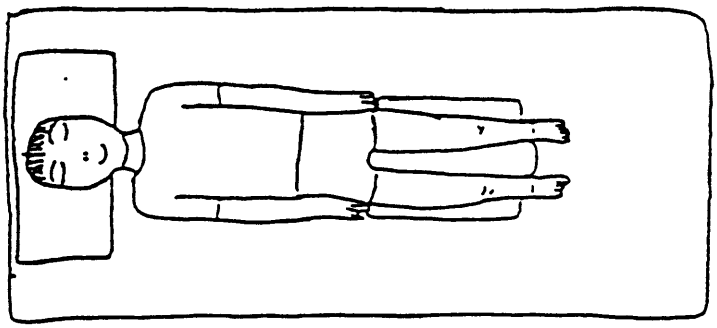
Precautions

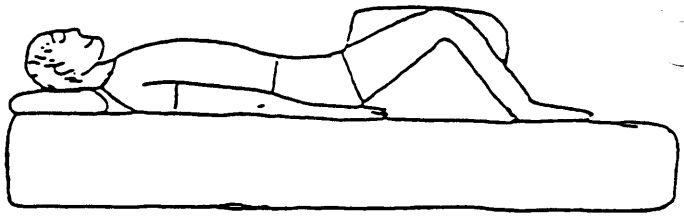
1. Poor position for eating and drinking.
2. Student should be able to breathe and swallow saliva adequately while in supine.
3. Students in supine should be closely watched and may need to be propped up on a wedge after meals, after medication, or if a student has congestion. This is due to increased risk of aspiration.
4. Can lead to deformities if not given adequate support and a variety of positions: scissoring, frog-legging, windsweeping, etc.
5. May promote abnormal primitive reflex patterns.
6. Poor position for awareness/cognitive development (limited field of view and difficult to use arms).
7. Skin breakdown on dorsal surface.

Considerations

1. Need to think about amount of visual stimulation in supine: object holder, propping up on wedge or mirrors all increase visual stimulation.
2. Angle of incline-affects head and arm movement (the greater the incline the easier the movement).
3. Positioning equipment needed beds, mats, wedges, rolls, bolsters, pillows, sandbags. Use these to counteract undesirable positioning listed below:
   a. **Scissoring** - flex legs to break up extensor tone. Place equipment between legs.
   b. **Windsweeping** - use positioning equipment to keep hips in alignment with the spine. This position may eventually cause dislocation of the hips.
   c. **Scoliosis** - use supports or sandbags at sides of student or a customized client positioner. Consider sidelying.
   d. **Frog-legging** - place pillows or positioning equipment to the sides of the student's legs. Support should also be given under the knees with a pillow or bolster.

Procedure	Points to Remember
Head is in alignment with the spine, both laterally, and front to back.	*Place pillow under head, so that it reaches under the shoulders.*
Position trunk so that hip flexion is minimized.	*Place small pillow under the small of the back, if comfortable.*
Slightly flex arms at elbow.	*Position arms comfortably at side with hands open. Use handroll if necessary.*
Extend legs in neutral position with toes pointed to ceiling.	*Support feet with a vertical support, so that student can brace his/her feet to keep them upright.*
Suspend heels in the space between cot and footboard.	*Place small pillow under ankles to prevent pressure on heels.*
Place hip rolls under greater trochanter (hip) in the area of hip joint and upper thigh.	*Place small pillows or rolled towels by the hips and upper thigh to prevent legs from turning outward.*





Positioning Guidelines: Side-Lying
(on side)

Purpose of Sidelying Position

1. To relieve sitting fatigue.
2. Is the favored option for the person who needs relief from supine, i.e. backlying position.
3. To allow greater head mobility.
4. To promote visual regard of the hand and thus eye-hand use.
5. To allow extremities to easily flex and come to mid-position of the body.
6. To inhibit abnormal reflexes/normalizes muscle tone.
7. To help decrease scoliotic curve if placed on apex of curve.

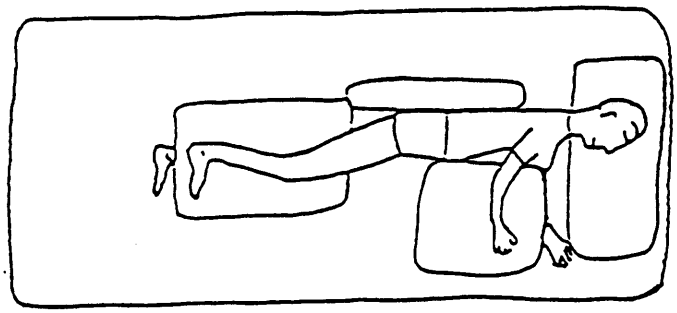
Precautions

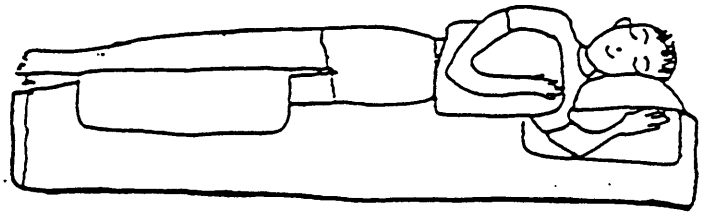
1. **No one** should be left on one side for over **30 minutes**, due to possibility of decreased circulation, edema, and decubiti at pressure points.
2. Consider extent and severity of physical disability.
3. Monitor pressure areas, i.e. shoulders, hips, knees and ankles, for redness and skin breakdown.
4. For good circulation, the person's lower arm should be positioned forward, out from underneath their body.
5. The person may need support behind the trunk to prevent rolling backwards and to give a feeling of support and security.

Considerations

1. ALWAYS support the head with a pillow to keep neck in line with the spine. Choose the thickness of the pillow as a shoulder spacer.
2. ALWAYS have a pillow between the knees as it provides for abduction of the hips and helps prevent subluxation (pulling out of) the upper hip joint.
3. Almost ALWAYS have a pillow or bolster in front of the trunk and under the upper arm to prevent subluxation of the shoulder joint.
4. Positioning equipment needed: beds, mats, pillows, sandbags, bolsters, side lyers, and wedges (to increase visual monitoring).

Procedure	Points to Remember
Align head with spine.	*Place pillow under head.*
Align body so that it is not twisted	*Place pillow lengthwise at the back, anchor the pillow by pushing pillowcase edge under student's back. Then fold outer side of pillow under and tuck it against the student for added support.*
Support slight hip abduction by positioning hip slightly forward.	*Flex hip and knee of upper leg, bringing upper leg forward so that it doesn't rest on lower leg. Position lower leg comfortably. Place pillow lengthwise under upper leg supporting the entire leg including the foot and ankle.*
Flex arm at elbow and shoulder joint.	*Position lower arm in comfortable position. Place upper arm and hand on pillow with elbow and shoulder flexed. Use hand roll if necessary.*





Positioning Guidelines: Sitting

Purpose of Seated Positioning

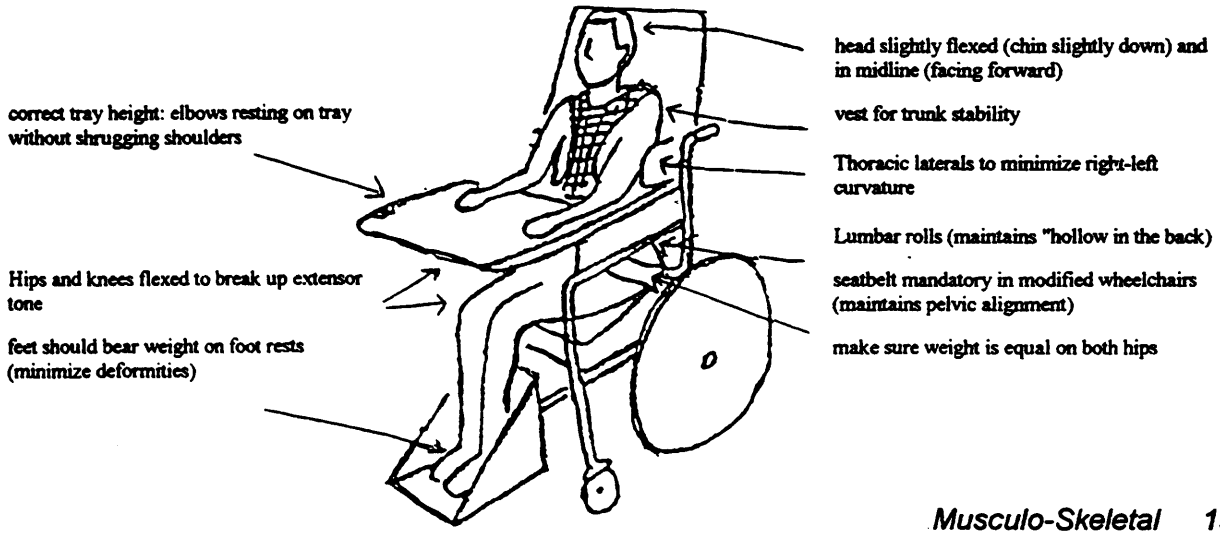
1. Feeding position.
2. Sit in chair for enhanced mobility.
3. Provides trunk stability for greater mobility in arms, legs, and head.
4. Provides limited weight bearing on feet, elbows.
5. Good positioning for visual stimulation, object manipulation and eye-hand coordination.
6. Provides an alternative position with view of the world.

Precautions

1. Maximum amount of time spent in this position is 2 hours at any one time (or as determined by the care-giver) in order to avoid skin breakdown.
2. Student may need pelvic positioning strap for safety in regular chairs, especially for students who have seizures. There is always a pelvic positioning strap on modified chairs.
3. Circulation to lower extremities is poorer in seated position, so feet and legs need to be check frequently for discoloration or edema (swelling).

Considerations

1. Student may need chair with arms for lateral support.
2. May need to provide proper body alignment in regular or rocking chairs, using pillows, etc., for support.
3. Student needs to be fairly centered in regular chair to prevent leaning or tilting to the side.
4. Foot stool or other device may be needed for regular chairs if feet do not contact floor.
5. May need to put regular chair up to table for support.
6. Usually will need tray on modified wheelchair for safety and positioning.
7. Reduces influences of primitive reflexes.
8. Can break up total flexion or extension patterns with stable flexed hips and slight anterior pelvic tilt.
9. Positioning equipment needed: wheelchair, tumbleform, beanbag, potty chair, car seat, regular or modified chairs, pillows, bolsters, adductors, velcro straps.



Student's Name:_____

Positioning a Student
Skills Checklist

Person Trained:_____

Position:_____

Instructor:_____

	Demo Date	Return Demonstration Date	Date	Date	Date	Date	Date
A: States name and purpose of the procedure							
B. Steps:							
1. Determines need for positioning.							
2. Explains procedure to the student and encourages participation.							
3. Washes hands.							
4. Assembles equipment (student-specific)							
5. Requests assistance as needed for safety of self and student.							
6. Follows principles of good body mechanics.							
7. Positions student correctly for the following positions: Supine Lateral Prone							
8. Makes sure student is safe and comfortable.							
9. Washes hands.							
10. Cleans and stores equipment as needed.							
11. Documents.							

6

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Assisting Student with a Cane

Procedure		Points to Remember
1.	Determine the need for assistance with a cane at school.	*Review the physician's orders and student's Individualized Health Care Plan.*
2.	Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3.	Obtain a consultation with a physical therapist if you are unfamiliar with using a cane.	*The physical therapist can assist and facilitate implementation of the physician's orders for ambulation.*
4.	Verify whether the student will be using 1 or 2 canes.	*Check physician's orders. Two canes are used when the student needs more support than offered by one cane but less support than offered by crutches.*
5.	Verify type of cane and handle ordered for student. Types of canes: straight, pole, 4-point, and folding. Types of handles: pistol grip, T-grip, and knobbed.	
6.	Check the fit of the cane for the student's height.	*With the student standing with his/her elbow flexed at a 30-degree angle, place the cane tip 6 inches to the side of the little toe, the handle should be approximately level with the greater trochanter (hip).*
7.	Check to ensure that the cane has the student's name on it.	
8.	Teach and/or reinforce gait. Hold the cane on the stronger side. Keep the cane close to the body to avoid leaning on it. Advance the cane and the weaker leg simultaneously.	*If student is unable to hold the cane with the hand opposite the weak leg, he/she can hold the cane on the same side as the weak leg and advance both cane and weak leg together.*

9.	Teach stair climbing: Upstairs: advance good leg up to next step, then the cane and the weaker leg to that step. Downstairs: place the cane and weaker leg on next lower step, then step down with the good leg.	*Remember: "the good go up and the bad go down."*
10.	Arrange for the student to use the elevator.	*Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
11.	Arrange transportation as needed for fire drills.	*Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
12.	Safety tips: Make sure rubber cane tips are in good repair.	*Tips should: be wide, provide good suction, and replaced promptly if worn.*
	Check screws and nuts often.	*Screws and nuts loosen with hard use.*
	Designate a place in the classroom for the cane. (Cane should be kept next to the student in the classroom if possible.)	*Canes can be a safety hazard for other students and staff. (Staff and students may trip over the cane or knock it over so that it may harm someone.)*
	Encourage student to keep hands free to handle cane.	*Student should be encouraged to carry possessions in his/her backpack or have another person help carry them.*
	If necessary, arrange for student to leave each class 5 minutes early.	*Leaving early allows the student to be out of the hall during regular changing of classes.*
13.	Document teaching and student's ability to walk with a cane.[7]	

Assisting Student with a Cane
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure							
B.	Steps:							
	1. States need for cane at school.							
	2. Explains procedure to student and encourages participation.							
	3. Seeks professional assistance as needed.							
	4. Verifies number and type of cane to be used.							
	5. Checks fit of cane.							
	6. Checks for name on cane.							
	7. Verifies gait.							
	8. Demonstrates stair climbing.							
	9. Ensures that cane has good tips and that screws and nuts are tight.							
	10. Discusses importance of allowing student to leave class early and use elevator.							
	11. Notes where cane is to be stored.							
	12. Encourages student to keep hands free when walking.							
	13. Documents.							

8

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Assisting a Student with Crutches

Procedure		Points to Remember
1.	Determine the need for assistance with crutches at school and the type of crutches to be used: axilla (under the arm) lofstrand (metal cuff on forearm) platform (weight on forearm)	*Review the physician's orders and student's Individualized Health Care Plan.*
2.	Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student to achieve maximum self-care skills.*
3.	Obtain a consultation with a physical therapist if you are unfamiliar with using crutches.	*The physical therapist can assist and facilitate implementation of the physician's orders for ambulation.*
4.	Assist student with muscle-strengthening exercises.	*As ordered by the physician.*
5.	Check the crutches for the appropriate length while the student is standing erect.	*Place the crutch tip 4 inches in front of and 6 inches to the side of the toes. The arm-piece should be 2 inches from the axilla (for axilla crutches).*
6.	Assist the student with the tripod stance, so that he/she is able to stand with balance and stability.	*The student should wear well-fitting, low-heeled, rubber-soled shoes, stand with feet slightly apart, and place crutches 6 to 10 inches in front of and to the side of the toes.*
7.	Check the handpiece. (Handpiece should allow a 20 to 30 degree flexion of the elbow when the arm-piece is 2 finger-widths below the axilla.)	*Proper positioning prevents brachial nerve paralysis. Show the student how to extend and stiffen his/her elbows so that the body weight is placed on the palms, never on the axilla.*
8.	Use axillary arm pads.	*Pads lessen pressure on the inside of the upper arm and the chest.*
9.	Check to ensure that the crutches have student's name on them.	
10.	Verify that the student is using the gait prescribed by the physician. The common crutch gaits include:	*Gait varies with type and severity of disability, condition of the student, arm and trunk strength and balance.*

Crutch Gaits:

4 Point Alternate Gait
A slow but stable gait. This gait can only be used by the student who can move each leg separately and bear considerable weight on each foot. Sequence: right crutch, left foot, left crutch, right foot.

2 Point Alternate Gait
A slightly faster gait, but requires more balance than the 4 point gait. Sequence: right crutch and left foot, left crutch and right foot.

3 Point Alternate Gait
A fairly rapid gait, but requires more strength and balance because the arms must support all the body's weight. Sequence: both crutches and the weaker extremity are moved forward simultaneously, the stronger extremity is moved forward while putting the body's weight on the arms.

Tripod Gait
A slow and labored gait, while maintaining the tripod position. Sequence: Tripod alternate crutch gait - right crutch, left crutch, drag body and legs forward. Tripod simultaneous crutch gait - both crutches, drag body and legs forward.

Swinging Gait
Both legs are lifted off the ground simultaneously and swung forward while the student pushes up on the crutches.
Sequence: Swinging-to gait - bear weight on good leg, advance both crutches forward, and while leaning forward, swing body to a position even with the crutches. Swinging-through gait - advance both crutches forward, lift both legs off the ground and swing forward landing in advance of the crutches, then bring crutches forward rapidly to prevent being caught off balance.

11.	Teach stair climbing: **Upstairs:** advance good leg up to next step, then the crutches and finally the weaker leg. **Downstairs:** place crutches on next lower step, then lower the weaker leg and finally step down the good leg.	*Remember: "the good go up and the bad go down."*
12.	Arrange for the student to use the elevator.	*Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
13.	Arrange transportation as needed for fire drills.	*Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
14.	Safety tips: Make sure rubber crutch tips are in good repair.	*Tips should be wide and provide good suction. They should be replaced promptly if worn.*
	Check screws and nuts often.	*Screws and nuts loosen with hard use.*
	Designate a place in the classroom for the crutches. If possible, crutches should be kept next to the student in the classroom.	*Crutches can be a safety hazard for other students and staff. (Staff and students may trip over the crutches or knock them down, which may harm someone.)*

	Encourage student to keep hands free to handle crutches.	*Student should be encouraged to carry possessions in his/her backpack or have someone else help carry them.*
	If necessary, arrange for student to leave each class 5 minutes early.	*Leaving early allows the student to be clear of the hall during regular changing of classes.*
15.	Document teaching and student's ability to walk with crutches.[9]	

Student's Name: _____

Person Trained: _____

Position: _____

Assisting Student with Crutches

Skills Checklist

Instructor: _____

	Demo Date	Date	Return Demonstration Date	Date	Date	Date	Date
A. States name and purpose of the procedure							
B. Steps: 1. States need for crutches at school							
2. Explains procedure to student and encourages participation.							
3. Seeks professional assistance as needed.							
4. Assists with muscle strengthening exercises as needed.							
5. Checks fit of crutches (length and handpiece).							
6. Observes for correct stance.							
7. Checks for name on crutches.							
8. Verifies gait. (Student-specific) 4 point alternate 2 point alternate 3 point alternate tripod swinging							
9. Demonstrates stair climbing.							
10. Ensures that crutches have good tips and that screws and nuts are tight.							
11. Discusses importance of allowing student to leave class early and use elevator.							
12. Notes where crutches are to be stored.							
13. Encourages student to keep hands free when walking.							
14. Documents							

10

Checklist content approved by

_____ Parent/Lawful Custodian

_____ Date

Assisting a Student with a Walker

Procedure		Points To Remember
1.	Determine the need for assistance with a walker at school.	*Review the physician's orders and student's Individualized Health Care Plan.*
2.	Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3.	Obtain a consultation with a physical therapist if you are unfamiliar with using a walker.	*The physical therapist can assist and facilitate implementation of the physician's orders for ambulation.*
4.	Verify that the student is using the prescribed walker.	*Check physician's orders.* *Standard Walker - rigid frame, adjustable height* *Mobile walker - wheels on legs to move forward* *Rollator walker - wheels in front, rubber tipped legs in back* *Swivel type walker - hinged so that right and left sides move independently* *Posterior walker - goes behind the student*
5.	Check the fit of the walker for the student's height.	*With the student standing erect and in line with the rear legs of the walker (if using a posterior walker, the student would be in line with the front legs), the student's elbow should be flexed at a 30 degree angle when his/her hands are on the grips.*
6.	Check to ensure that the walker has the student's name on it.	
7.	Teach and/or reinforce the gait. • Place walker forward less than an arm's length. • Take a step with each leg. • The student's body should not come into contact with the crossbar.	
8.	Do not allow the student to use the walker on the stairs.	*A walker can not be used safely on stairs or inclines.*

9.	Arrange for the student to use the elevator.	*Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
10.	Arrange transportation as needed for fire drills.	*Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
11.	Safety tips: Make sure rubber tips are in good repair.	*Tips should be wide and provide good suction. They should be replaced promptly if worn.*
	Check screws and nuts often.	*Screws and nuts loosen with hard use.*
	Designate a place in the classroom for the walker. If possible, the walker should be kept next to student in the classroom.	*Walkers can be a safety hazard for other students and staff. (Staff and students may trip over the walker or knock it over so that it may harm someone.)*
	Encourage student to keep hands free to handle the walker.	*Student should be encouraged to carry possessions in his/her backpack or have another person help carry them.*
	If necessary, arrange for student to leave each class 5 minutes early.	*Leaving early allows the student to be clear of the hall during regular changing of classes.*
12.	Document teaching and student's ability to walk with a walker.[11]	

Assisting Student with a Walker
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure							
B.	Steps:							
	1. States need for walker at school.							
	2. Explains procedure to student and encourages participation.							
	3. Seeks professional assistance as needed.							
	4. Checks fit of walker.							
	5. Checks for name on walker.							
	6. Verifies gait.							
	7. States that student should not use stairs.							
	8. Ensures that walker has good tips and that screws and nuts are tight.							
	9. Discusses importance of allowing student to leave class early and use elevator.							
	10. Notes where crutches are to be stored.							
	11. Encourages student to keep hands free when walking.							
	12. Documents.							

12

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Assisting a Student with a Wheelchair

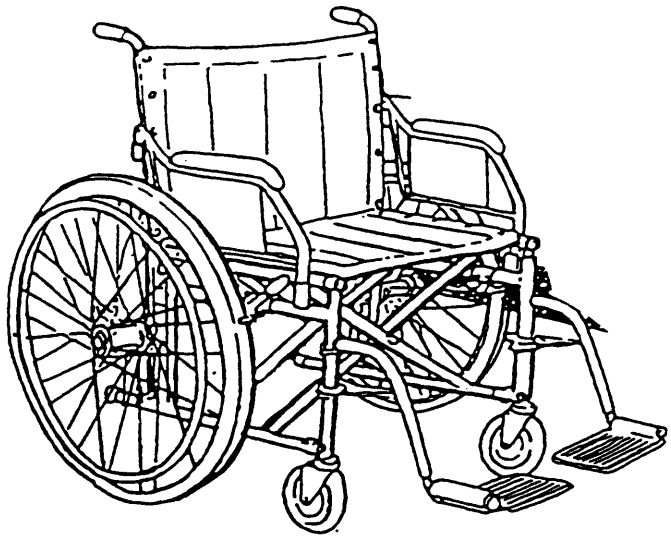
Procedure	Points to Remember
1. Determine the need for assistance with wheelchair.	*Review the physician's orders and student's Individualized Health Care Plan.*
2. Verify that the school is fully wheelchair accessible.	
3. Obtain consultation with a physical therapist if needed.	*The physical therapist can assist and facilitate implementation of the physician's orders for a wheelchair and can make recommendations regarding accessibility.*
4. Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
5. Assisting the student to move from a surface the height of the wheelchair seat to the wheelchair:	
• Position wheelchair at a 45-degree angle to the transfer seat. Lock the wheels.	*Place wheelchair so student moves toward strongest side.*
• Bring head and shoulders to the edge of seat.	*Allow student to assist as much as possible.*
• Bring feet and legs to edge of seat.	*Use principles of good body mechanics.*
• Slide both arms under the student's hips, then straighten your back while bringing the student toward you.	
• Roll student on side facing you, bend student's knees.	
• Place arm under student's knees.	
• Place other arm under student's neck and shoulder area.	

• On a verbal cue, shift weight to leg nearest foot of seat, while swinging student's legs over edge of cot and pulling the student's shoulders to a sitting position.	*Position feet wide apart. Lower the student's center of gravity by bending his or her knees.*
• Remain in front of student with both hands supporting him/her.	*Allow student to sit for 2 minutes. Observe for dizziness relating to orthostatic hypotension. Do not leave student until he/she is stable.*

6. Assisting the student to a standing position.

• Lock wheelchair wheels	*Make sure student can bear weight.*
• Instruct student to move to edge of cot or chair with hands on chair arms or cot edge.	*Allow student to help as much as possible.*
• Place one knee between student's knees (if student has a weak knee, brace it with your knee).	
• Instruct student to put stronger foot slightly under him.	
• Bend knees, lean slightly forward, and place arms around student's waist. Grasp a strong belt around the student's waist.	*Stand close to cot with feet wide apart for a broad base of support.*
• Instruct student to push down with his/her arms, lean forward, and stand up on the count of 3.	
• Hold student closely.	
• On count of 3, rock weight to back foot bringing student forward to standing.	*Use a cue that both you and the student can understand.*
• Instruct student to lock knees.	

- Allow time for the student to balance him/herself, then pivot the student slowly until he/she is back in the chair.



7. Assisting the student to a sitting position.
   - Lock wheelchair wheels — *Allow student to assist as much as possible.*
   - Remind student to feel back of chair with his/her legs.
   - Instruct student to reach back for chair arms.
   - Hold the student at the waist by grasping a strong belt.
   - Shift weight to forward leg and guide student as he/she bends knees and sits in the chair. — *Place student's buttocks at back of chair.*
   - Make sure student is safe and secure. — *Use a seatbelt or harness as needed.*
8. Recharge batteries on motorized chairs or scooters each day according to battery manufacturer's directions. — *Generally, gel batteries are used. These do not contain water. Acid batteries can be harmful if tipped and are not allowed on public transportation.*
9. Arrange for the student to use the elevator. — *Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
10. Arrange transportation as needed for fire drills. — *Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
11. Wheelchair safety points.

	• Check rear wheels for movement when brakes are locked.	*Brakes need to be repaired when they are ineffective or out of alignment. (Note: Routine maintenance should be performed at home.)*
	• Make sure seatbelt is fastened.	
	• Feet should be on footrests.	
	• Arms and legs should be inside the chair when passing through a doorway.	
	• Always lock breaks when wheelchair is stopped, even if empty.	
	• Push at a walking speed. Holding on to wheelchair when pushing it.	*Extra caution should be taken on gravel or uneven surfaces because the front wheels could become stuck and the wheelchair might tip over.*
	• Never tilt chair far back, turn sharply, or stop rapidly.	
	• Back wheelchair down ramps and curbs.	*Both wheels should go over curb together so chair does not tip.*
	• Push wheelchair forward going up ramps and curbs.	*Tip chair back so that front wheels clear the curb.*
12.	If needed, arrange for student to leave class 6 minutes early.	*Allows student to be clear of hallway during changing of classes.*
13.	Review or teach student safety points.[13]	

Assisting Student with a Wheelchair
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure.							
B.	Steps:							
1.	States need for wheelchair at school.							
2.	Explains procedure to student and encourages participation.							
3.	Seeks professional assistance as needed.							
4.	States necessity of school being wheelchair accessible and verifies accessibility.							
5.	Washes hands.							
6.	Demonstrates assisting student from a cot or bed to a wheelchair.							
7.	Demonstrates assisting student to a standing position.							
8.	Demonstrates assisting student to a sitting position.							
9.	Demonstrates assisting student with transfer to a sliding board.							
10.	Discusses 10 safety points with a wheelchair.							
11.	Notes where wheelchair is to be stored.							
12.	Discusses importance of student leaving class early.							
13.	Discusses importance of teaching student safety points.							

14

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Assisting a Student with a Prosthesis

Procedure		Points to Remember
1.	Determine the need for the prosthesis. (A prosthesis is an orthopedic device that is a replacement for a missing body part.)	*Review the physician's orders and student's Individualized Health Care Plan.*
2.	Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3.	Obtain a consultation with a physical or occupational therapist if you are unfamiliar with using a prosthesis.	*The physical or occupational therapist can assist and facilitate implementation of the physician's orders for a prosthesis.*
4.	Check gait and proper fit and function of the prosthesis.	• *Check physician's orders.* • *Observe student in prosthesis. Assure proper alignment of the prosthesis and that stockinette is put on under prosthesis. Prosthesis may be removed before showers and swimming.* • *Assess the condition and cleanliness of prosthesis.* • *Encourage student/lawful custodian to keep prosthesis clean.*
5.	If allowed, remove prosthesis and observe skin condition under prosthesis daily.	*Observe for areas of redness or skin breakdown. Report any areas of concern to lawful custodian and/or physician.*
6.	Check to ensure that the prosthesis has the student's name on it.	
7.	Verify the ability of the student to function with prosthesis on.	*Note if the student is able to move and function as he/she should. Report any concerns to lawful custodian and/or physician.*
8.	Determine student's ability to remove and put on prosthesis.	*Watch student put on and remove prosthesis.*

9.	If needed, arrange for the student to use the elevator.	*Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
10.	Arrange transportation as needed for fire drills.	*Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
11.	Document care and findings on log.	*Refer any problems to lawful custodians and/or physician as needed.*[15]

Assisting Student with a Prosthesis
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure.							
B.	Steps:							
	1. States need for prosthesis at school.							
	2. Explains procedure to student and encourages participation.							
	3. Seeks professional assistance as needed.							
	4. Verifies gait and proper fit and function of prosthesis.							
	5. Checks skin for possible problems under prosthesis if prosthesis can be removed.							
	6. Checks for name on prosthesis.							
	7. Verifies student's ability to function with prosthesis.							
	8. Assesses student's ability to remove and put on prosthesis.							
	9. Observes for possible problems and identifies appropriate actions (inflamed joint, reddened skin, ill fitting equipment, or joint contracture).							
	10. Documents.							

16

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Assisting a Student with an Orthosis

Procedure	Points to Remember
1. Determine the need for the orthosis. (An orthosis is an orthopedic device that is used to support a body part. Can be a splint, brace, etc.)	*Review the physician's orders and student's Individualized Health Care Plan.*
2. Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3. Obtain a consultation with a physical or occupational therapist if you are unfamiliar with using the orthosis.	*The physical or occupational therapist can assist and facilitate implementation of the physician's orders for ambulation.*
4. Check for proper fit and function of the orthosis.	• *Check physician's orders.* • *Check full length of orthosis.* • *Observe student in orthosis. Mechanical joints should match body joints.* • *Observe orthosis for: worn areas, loose or missing buckles, straps or screws; cracks in the plastic; dents in the metal; condition of related areas (such as shoes).* • *Encourage student/lawful custodian to keep orthosis clean.*
5. If allowed, remove orthosis and observe skin condition under orthosis daily.	*Observe for areas of redness or skin breakdown. Report any areas of concern to lawful custodian and/or physician.*
Observations	**Reason/Action**
6. Check to ensure that the orthosis has the student's name on it.	
Inflamed joint	*Signs of inflamed joint are pain, warmth, or redness at joint. Notify lawful custodian and/or physician of any signs of inflammation.*

	Reddened areas on the skin under orthosis.	*May be beginning stage of pressure sore. Remove orthosis if allowed. If reddened area does not disappear after 20 minutes, notify lawful custodian and/or physician.*
	Too small or ill fitting equipment	*Notify lawful custodian and/or physician.*
	Joint contracture	
7.	Verify the ability of the student to function with orthosis on.	*Note if the student is able to move and function as he/she should. Report any concerns to lawful custodian and/or physician.*
8.	Determine student's ability to remove and put on orthosis.	*Watch student put on and remove orthosis.*
9.	If needed, arrange for the student to use the elevator.	*Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
10.	Arrange transportation as needed for fire drills.	*Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
11.	Document care and findings on log.[17]	

Assisting Student with an Orthosis
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure							
B.	Steps:							
1.	States need for orthosis at school.							
2.	Explains procedure to student and encourages participation.							
3.	Seeks professional assistance as needed.							
4.	Verifies proper fit and function of orthosis.							
5.	Checks skin for possible problems under orthosis if orthosis can be removed.							
6.	Checks for name on orthosis.							
7.	Verifies student's ability to function with orthosis.							
8.	Assesses student's ability to remove and put on orthosis.							
9.	Observes for possible problems and identifies appropriate actions (inflamed joint, reddened skin, ill fitting equipment, or joint contracture).							
10.	Documents.							

18

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Cast Care

Procedure	Points to Remember
1. Determine the need for the cast. (A cast is molded and applied directly to a body part to immobilize the body part so that correct anatomical position is maintained for proper healing.)	*Review the physician's orders and student's Individualized Health Care Plan.*
2. Explain the procedure to the student at his/her level of understanding. Encourage the student to participate as much as possible.	*By encouraging the student to assist in the procedure, the care-giver is helping the student achieve maximum self-care skills.*
3. Obtain a consultation with a physical or occupational therapist if you are unfamiliar with casts.	*The physical or occupational therapist can assist and facilitate implementation of the physician's orders for a cast.*
4. Check cast fit. Observe affected body part that is visible. Check for:	
• Pinkness, swelling, and warmth of extremity	*Extremity should be pink and warm with no swelling.*
• Capillary refill of toes or fingers	*Capillary refill can be checked by pressing on the nailbeds of the toes or fingers. After releasing the nailbed, the color should return rapidly to the nailbed.*
• Sensation and movement of toes or fingers	*The student's ability to move (within 1-2 seconds) and feel in the extremity can be evaluated by viewing his/her response to touch. Report any changes to lawful custodian and/or physicians.*
• Cast tightness	*Signs include: pale to white color of fingers or toes, fingers or toes cool or cold to touch, swelling of affected body part, numbness or tingling, decrease or absence of sensation or movement. May indicate beginning of reduced circulation to extremity due to pressure under the cast. Notify lawful custodian and/or physician immediately.*

5. Observe the cast.

a.	General condition	*Observe cast for cracks, dents, or soft spots. Edges should not be soft or crumbly. Remind student not to put anything inside the cast. Encourage student/lawful custodian to keep cast clean.*
b.	Drainage or odor	*May be due to an open sore, sloughing of the skin under the cast, or infection. Report any drainage or odor to lawful custodian and/or physician.*
c.	Damage	*Immobilize extremity and notify physician of the extent of the damage.*
d.	Dampness or soiling	*Allow to air-dry. If wet area is large or cast is soiled, contact school nurse or lawful custodian.*

6. Observe for any complaints or problems noted by the student, including pain or gestures of pain. *Observe for skin rashes or reddened areas around the cast. Notify lawful custodian and/or physician of any concerns.*

a. Pain may be due to pressure areas resulting from improper molding of cast or food, or foreign particles under cast, which can cause irritation and skin breakdown. Report any complaints or gestures of pain to lawful custodian and/or physician.

b. Pain as well as decreased sensation can also be an indicator of pressure build-up under the cast. Pressure decreases circulation to affected extremity. Decrease in circulation can result in damage to muscle tissue and nerves. If pressure causes

	damage to muscle tissue and nerves. If pressure causes a decrease in circulation as described, raise casted extremity above rest of student's body and contact physician immediately so that pressure can be relieved. Contact lawful custodian and/or physician.	*Cover cast with plastic wrap as needed at mealtimes and with elimination. If plastic wrap is soiled or wet, remove plastic wrap, clean skin, and reapply wrap.*
7.	Protect cast from soiling.	
8.	Skin may be rubbed with isopropyl alcohol (70%) at least 4 times a day.	*Toughens skin around cast to help prevent skin irritation.*
9.	If student is immobile, change position as needed.	*Prevents skin breakdown.*
10.	If needed, arrange for the student to use the elevator.	*Use of the elevator decreases the possibility of injury to the student or others on the stairs. If an elevator is not available, the student may need all of his/her classes on the ground floor.*
11.	If needed, arrange transportation as needed for fire drills.	*Elevators are not available during fire drills. Prearrange an evacuation plan for the student prior to fire drills.*
12.	Document care and findings on log.	*Refer any problems to lawful custodian and/or physician as needed.*[19]

Cast Care
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

		Demo	Return Demonstration					
		Date	Date	Date	Date	Date	Date	Date
A.	States name and purpose of the procedure.							
B.	Steps:							
	1. Verifies cast in place.							
	2. Explains procedure to student and encourages participation.							
	3. Seeks professional assistance as needed.							
	4. Verifies cast fit and observes affected body part for pinkness, warmth, capillary refill, movement and sensation.							
	5. Identifies possible problems and actions (damaged cast, cast that becomes wet or soiled, cast too tight, pain, or drainage or odor from cast).							
	6. Demonstrates how to protect cast from soiling.							
	7. Explains how to toughen skin (isopropyl alcohol).							
	8. Assesses need to change student's position.							
	9. Documents.							

20

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

Manual Transfers

I. Purpose

Proper moving and lifting of students with disabilities is important to preserve their health and well-being as well as to ensure safety of the caregiver. Certain types of predictable transfers and movements are necessary to assure physical comfort, promote care measures and prevent further debilitation of students with physical disabilities. These could include:

1. Transfers to and from chair or wheelchair.
2. Transfers to and from potty chair, toilet or commode.
3. Transfers to and from standers.
4. Transfers to and from bed, mat, changing table.

II. Suggested Settings

Proper moving and lifting is appropriate and necessary in any school setting.

III. Special Equipment

Special equipment may include:

Mechanical lifts
Adequate staff assistance
Turning sheets, transfer belts, sliding boards
Wheelchairs, chairs
Potty chairs, commodes, and toilets
Motor vehicle adaptations and car seats
Standers, beds, mats, and changing tables

IV. Suggested Personnel & Training

Any adult with proven competency - based training in moving and transferring techniques could perform this procedure safely and effectively.

V. Individualized Health Care Plan: Issues for Special Consideration

Lifting and moving students with special health care needs requires planning in advance as well as thorough knowledge of the student's medical condition and ability to assist.

Each student's Individualized Health Care Plan must be tailored to his/her needs. The following sections cover procedures for lifting, moving and transferring. It is essential that the procedures be reviewed before writing the Individualized Health Care Plan.

A sample of the Individualized Health Care Plan and Anticipated Health Crisis Plan are found in Appendix A. These may be copied and used to develop a plan for each student. For a student who requires assistance with lifting, moving or transferring the following points should receive particular attention:

- The student's disability and fragility.
- The student's ability to assist.

Assistance with Movement: Mechanical Lifts[21]

I. Purpose

Mechanical lifters allow a person to be lifted with a minimum of physical effort. A mechanical lifter might be employed whenever:

1. A student is too heavy to be transferred without assistance of a lifting device.
2. There is a need to prevent injury to the caregiver while transferring the student.
3. There is a need to prevent injury to the caregiver while assisting the student.

Manual lifting and transferring may be required frequently throughout the school day to assist a disabled student to sit, stand or move from one location or position to another.

II. Suggested Settings

Proper moving and lifting is appropriate and necessary in any school setting.

III. Special Equipment

Equipment requirements include a mechanical lifter and/or adequate staff.

IV. Suggested Personnel and Training

Any adult with proven competency-based training in moving and transferring techniques could perform this procedure safely and effectively.

The basic skills checklist included at the end of this discussion can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step-by-step. Once skills have been mastered, the completed checklist serves as documentation of training.

V. Individualized Health Care Plan: Issues for Special Consideration

Lifting and moving students with special health care needs requires planning in advance as well as thorough knowledge of the student's medical condition and ability to assist.

Each student's Individualized Health Care Plan must be tailored to his/her needs. A sample of the Individualized Health Care Plan and Anticipated Health Crisis Plan are found in Appendix A. These may be copied and used to develop a plan for each student. The following sections cover procedures for lifting, moving and transferring. It is essential that the procedures be reviewed before writing the Individualized Health Care Plan.

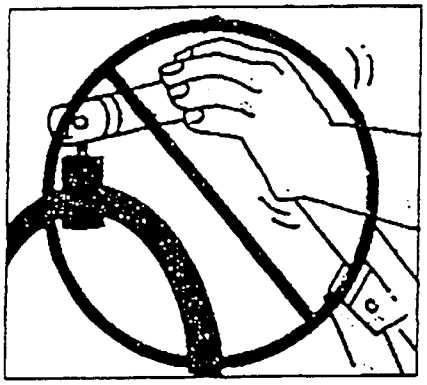
For a student who requires a mechanical lift, the following general precautions should be followed:

Using the proper lifter and the correct sling attachment are very important. Selection of the proper lift and sling is determined by student's:

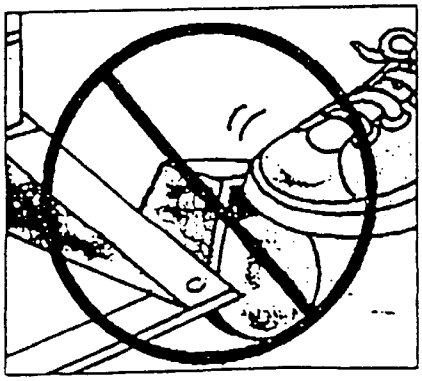
- Disability
- Size
- Weight
- Specific type of transfer

- NEVER exceed the maximum capacity of the lifter.

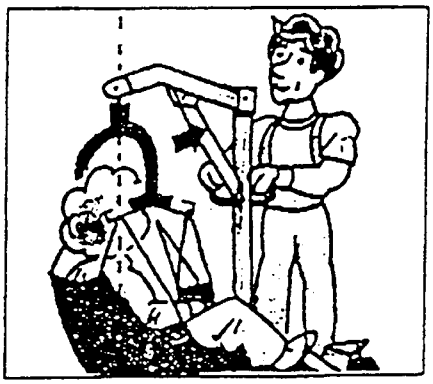
- Never push or pull on lifter boom. Pushing or pulling on boom can cause lifter to tip over.



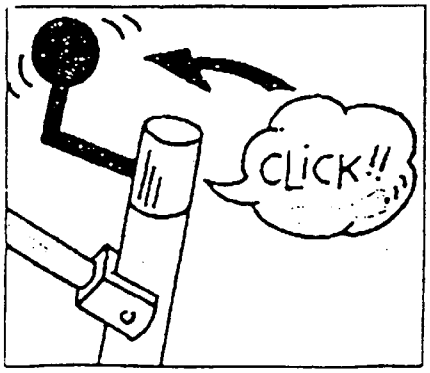
- Do not lock the brakes or block the wheels when lifting student. The wheels must be FREE to roll to allow the lifter to center itself beneath student.

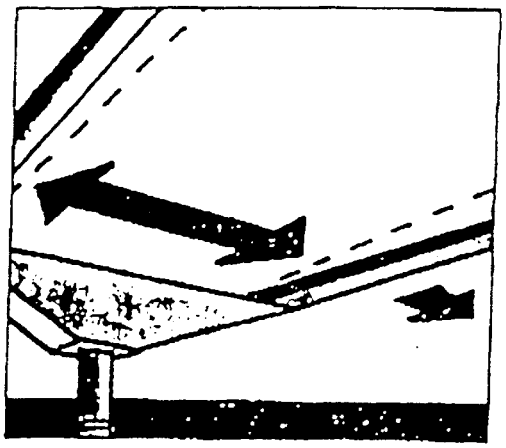


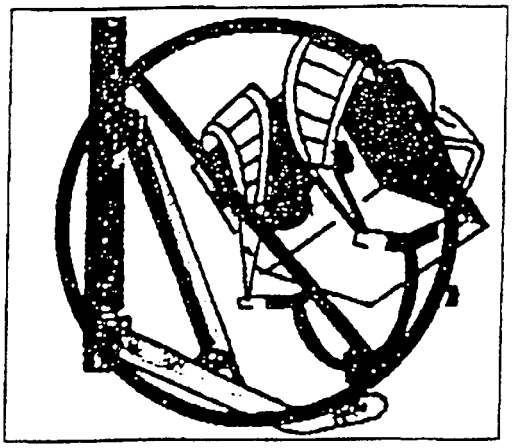
- When lifting, ALWAYS keep student centered over the base and facing the caregiver who is operating the lifter.



- On older crank style lifters that make a clicking sound when cranking, failure to lock crank handle may result in the crank handle spinning rapidly and striking the caregiver. Once the student has been raised or lowered, LOCK the crank handle by turning it COUNTER CLOCKWISE one-quarter of a turn.

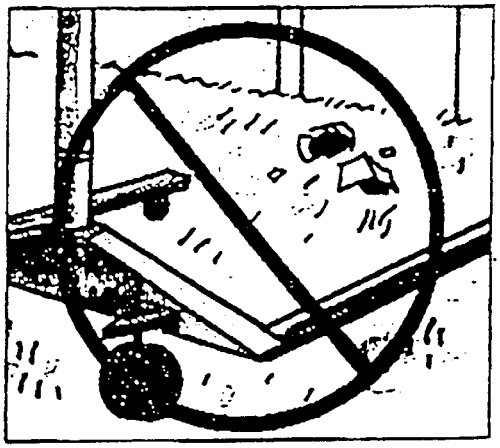






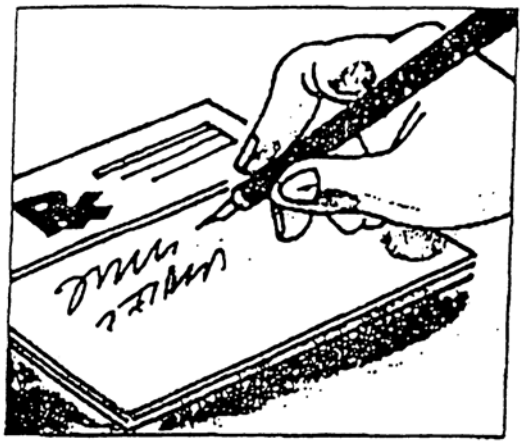
- The lifter is NOT designed for use as an equipment hoist. NEVER use the lifter to lift or transfer anything other than a student.

- To reduce the hazard of tipping over, spread adjustable base lifters to their widest position before lifting anyone.



- Student (especially when wearing slippery garments) may slide out of sling if it is not adjusted properly. Position student so that knees are slightly above waist.

- DO NOT move lifter and student over shag or deep pile carpeting, thresholds, unpaved surfaces, outdoors or any other obstructions that can cause wheel stoppage and a tip over.

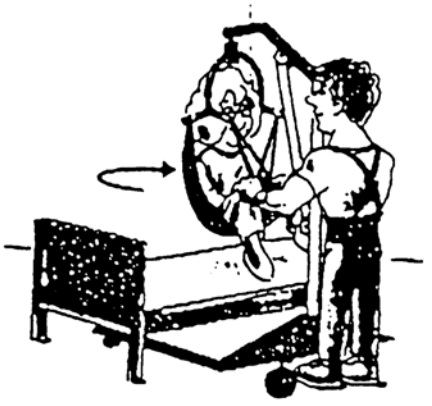


- Use restraint straps for comatose, spastic, agitated or severely disabled student. Use restraints only with physician's prescription.

Lifting and Moving: Mechanical Lifts

A. Transfer to Bed or Raised Mat

Procedure	Points to Remember
1. Raise lifter just until student's buttocks clear the surface of the bed.	*Student should not be lifted high above bed. LET THE LIFT DO THE WORK. Do not physically manipulate the student onto the bed as this can cause serious injury to the student and attendant.*
2. Move lifter so that open end of U-base or C-base is as far under bed as possible. (Figure A)	
3. After student has been centered on bed, rotate student so that she faces foot of bed. (Figure A)	
4. Carefully lower student onto bed. (Figure B)	



(A)

(B)

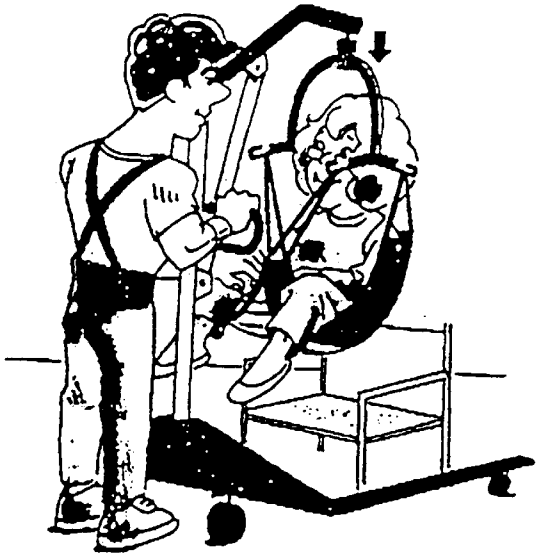
B. Transfer to Wheelchair or Chair

Procedure

1. Position lifter so that the student is as far back in chair as possible.
2. Lower student slowly into chair.
3. To position, push gently on the knees of the student with your right or left hand while simultaneously lowering student into chair.
4. Another alternative for positioning student further back into chair:
   a. Raise student so she is just touching seat.
   b. Pull up on the top and back of sling with left hand.
   c. Complete lowering student into chair.
   d. Raise student and repeat steps b-c if necessary.
5. Unhook sling from cradle or chains or straps from sling.

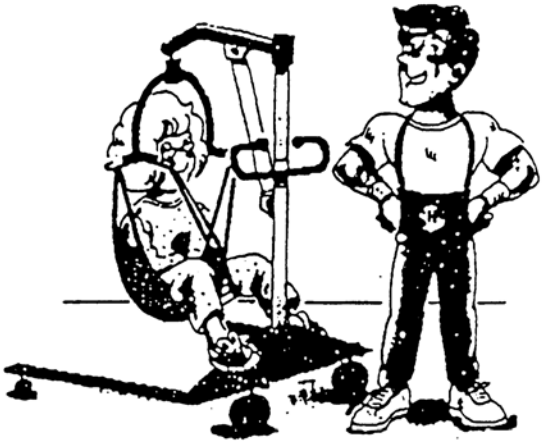
Points to Remember

Always be sure to lock wheelchair brakes if transferring to a wheelchair.



C. **Transporting Student in Lifter**

Procedure	**Points to Remember**
1. If transporting over a short distance, ensure that student is facing attendant and keep student as low as possible so that her feet rest on the base of the lifter straddling the mast, if possible. Lower center of gravity reduces the risk of tipping over.	*DO NOT transport students on shag or deep pile carpeting, thresholds, unpaved surfaces, outdoors or any other obstructions. If transport between rooms is necessary, have thresholds removed. Forcing lifter over obstructions can cause a lifter to tip over.*



D. **Removing Sling from Under Student**

Procedure	**Points to Remember**
<u>Canvas Style Sling:</u>	
1. Pulling sharply on sling may cause student to fall forward resulting in injury. Always stand in front of student when placing or removing the sling.	*It is not necessary to remove sling unless desired by student.*
2. Remove armrests from chair if possible. (OPTIONAL) Disconnect sling from lifter.	

3. Stand in front of student, lean student forward and place her arms on her knees for stability. Pull sling flaps to the side, out from under student's thighs.

4. Still standing in front of student reach back and pull U-sling up from behind student. Reposition student back into chair.

Adjustable Chain and Web Buckle Style Sling:

1. Disconnect snap hooks to D-rings and pull sling flaps to the side, out from under student's thighs.

2. While still standing in front of student, reach back and gently pull sling up from under student. Lean student back and properly position in chair.

Lifting and Moving: Mechanical Lifts
Skills Checklist

Student's Name:_____

Person Trained:_____

Position:_____ Instructor:_____

	Demo	Return Demonstration					
	Date	Date	Date	Date	Date	Date	Date
A. States name and purpose of the procedure							
B. Identifies appropriate equipment:							
1. Proper lifter.							
2. Proper sling.							
3. Rationale for using numbers 1 and 2.							
C. Procedure:							
1. Positions sling appropriately on student.							
2. Raises student correct distance.							
3. Positions lifter correctly.							
4. Rotates student to proper position for transfer.							
5. Demonstrates correct body mechanics.							
D. Transfer to Bed or Raised Mat							
1. Lifter raised to clear bed surface.							
2. When centered on bed, rotates student and lowers onto bed.							
E. Transfer to Wheelchair or chair							
1. Positions student in sling as far back as possible on chair.							
2. Lowers student into chair.							
3. Pushes gently on knee of student while simultaneously lowering into chair.							
4. Release sling from straps/chains and removes from student.							
F. Transporting							
1. Ensure student faces attendant.							
2. Rests student's feet on base of lifter, if possible.							
3. Releases sling and removes from student.							
G. Sling Placement/Removal							
1. Pulls sling gently from under student.							
2. Removes armrests from chairs if possible.							
3. Appropriate placement of attendant in front of student demonstrated.							

22

Checklist content approved by:

_____ _____

Parent/Lawful Custodian Date

NOTES

1. Information in this section adapted from:

   Graff, J., Ault, M., Guess, D., Taylor, M., and Thompson, B. (1990). *Healthcare for students with disabilities: An illustrated medical guide for the classroom*. Baltimore: Paul H. Brookes Publishing. (Please refer to individual notes throughtout the section for details concerning specific passages of text).

2. Information on pages 1-7 of this section adapted from:

   Graff, J., Ault, M., Guess, D., Taylor, M., and Thompson, B. "Therapeutic management." (pp. 119-147).

3. Information on pages 8-9 of this section adapted from:

   Graff, J., Ault, M., Guess, D., Taylor, M., and Thompson, B. "Therapeutic management." (pp.135-137).

   Keen, T., et al. (1996). *Guidelines for specialized healthcare procedures.* Virginia Department of Health. Richmond. (pp. VII/31-VII/33).

4. Information on page 10 of this section adapted from:

   Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program. (1987). *Getting it started and keeping it going: A guide for respiratory home care of the ventilator assisted individual.* New Orleans, LA.

5. Information on pages 11-14 of this section adapted from:

   Keen, T., et al. *Guidelines for specialized healthcare procedures.* Virginia Department of Health. Richmond. (pp.).

   Graff, C., Ault, M., Guess, D., Taylor, M., and Thompson, B. (pp. 119-147).

6. Information on page 20 of this section adapted from:

   Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

7. Information on pages 21-22 of this section adapted from:

   Keen, T., et al. *Guidelines for specialized healthcare procedures.* Virginia Department of Health. Richmond.

8. Information on page 23 of this section adapted from:

   Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

9. Information on pages 24-27 of this section adapted from:

   South Carolina Department of Health and Environmental Control. (1990). *Manual of nursing procedures for South Carolina Schools*, "Crutches".

10. Information on page 28 of this section adapted from:

    Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

11. Information on pages 29-30 of this section adapted from:

    Keen, T., et al. (pp. VII/7-VII/16).

12. Information on page 31 of this section adapted from:

    Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

13. Information on pages 32-35 of this section adapted from:

    Keen, T. et al. (pp. VII/7-VII/16).

14. Information on page 36 of this section adapted from:

    Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

15. Information on pages 37-38 of this section adapted from:

    Keen, T. et al. (pp. VII/21-VII/23).

16. Information on page 39 of this section adapted from:

    Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

17. Information on pages 40-41 of this section adapted from:

    Keen, T. et al. (pp. VII/24-VII/26).

18. Information on page 42 of this section adapted from:

    Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.

19. Information on pages 43 through 45 of this section adapted from:

    Keen, T., et al. *Guidelines for specialized healthcare procedures.* Virginia Department of Health. Richmond.

    Graff, J., Ault, M., Guess, D., Taylor, M., and Thompson, B. "Cast care." (pp. 171-183).

20. Information on page 46 of this section adapted from

Children's Hospital Chronic Illness Program, Ver rogram.

21. Graphics and materials on pages 49 through 52 of th permission from:

Sunrise Medical. (1997). *Hoyer Lift Operator's Manual.*

22. Information on page 57 of this section adapted from:

Children's Hospital Chronic Illness Program, Ventilator Assisted Care Program.